

REMARKS

Applicants request reconsideration and allowance of the subject application in view of the foregoing amendments and the following remarks.

Claims 1-16 and 22-26 are pending in this application, with Claims 1, 4, 8, 11, 24, and 25 being independent. Claims 17-21 have been cancelled herein without prejudice to or disclaimer of the subject matter contained therein. Claims 1-3, 6-10, 13-16, 22, and 23 have been amended. Claims 24-26 are newly presented. No new matter is believed to have been added.

Applicants acknowledge the indication that Claims 4, 5, 11, and 12 are considered to be allowable.

Claims 1, 6, 8, 13, 15, 17, 18, 20, 21, and 23 have been rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,000,024 (“Maddox”) in view of U.S. Patent No. 5,812,975 (“Komori ‘975”), in view of U.S. Patent No. 5,787,396 (“Komori ‘396”), and further in view of U.S. Patent No. 6,374,210 B1 (“Chu”). Claims 2 and 9 have been rejected under 35 U.S.C. § 103(a) as being obvious over Maddox in view of Komori ‘975, in view of Komori ‘396, in view of Chu, and further in view of the paper “Connected Sentence Recognition Using Diphone-Like Templates” (“Rosenberg”). Claims 3 and 10 have been rejected under 35 U.S.C. § 103(a) as being obvious over Maddox in view of Komori ‘975, in view of Komori ‘396, in view of Chu, and further in view of U.S. Patent No. 5,311,429 (“Tominaga”). Claims 7 and 14 have been rejected under 35 U.S.C. § 103(a) as being obvious over Maddox in view of Komori ‘975, in view of Komori ‘396, in view of Chu, and further in view of U.S. Patent No. 5,926,784 (“Richardson”). Claim 16 has been rejected under 35 U.S.C. § 103(a) as being

obvious over Maddox in view of Komori '975, in view of Komori '396, in view of Chu, in view of Tominaga, and further in view of U.S. Patent No. 5,845,047 ("Fukada") and U.S. Patent No. 5,913,193 ("Huang"). Claims 19 and 22 have been rejected under 35 U.S.C. § 103(a) as being obvious over Maddox in view of Komori '975, in view of Komori '396, in view of Chu, and further in view of Huang. These rejections are respectfully traversed.

Independent Claim 1, as amended, recites a speech signal processing apparatus including HMM learning means for computing HMMs of speech segments with phonetic label in a speech database; segment recognition means for performing segment recognition of the speech segments in the speech database on the basis of the HMMs; and registration means for registering a speech segment in a segment dictionary, in a case where the recognition result of the speech segment by the segment recognition means corresponds to the phonetic label of the speech segment. Independent Claim 8 is a corresponding method claim.

According to the invention, speech segments in the speech database can be recognized on the basis of the computed HMMs and registered in a segment dictionary, in a case where the recognition result of a speech segment corresponds to the phonetic label of the speech segment.

According to the invention, each speech segment can be stored in a speech database with a phonetic label for indicating consonant and vowel components of the speech segment.

As noted in the Office Action, Maddox does not mention HMM. However, Komori is said to teach computing HMMs of phonemes on the basis of a search result of speech

segments and performing segment recognition of a speech segment on the basis of the HMMs of the phonemes.

Komori discloses a speech recognition system which determines voice parameters from an input voice and determines an output probability by comparing the voice parameters with HMMs which are used as dictionary data for speech recognition. Rough HMMs used for estimating how much a phoneme will contribute to the recognition of the input voice are stored into a storing portion 105, and detailed HMMs for calculating the precise output probability are stored into a storing portion 106 (column 4, lines 15-31).

Applicants submit that while Komori may disclose the storing of HMMs used for estimating how much a phoneme contributes to the recognition of the input voice, the patent does not teach or suggest computing HMMs of speech segments in a speech database and registering a speech segment in a segment dictionary, in a case where the recognition result of the speech segment corresponds to the phonetic label of the speech segment.

Accordingly, Applicants submit that independent Claims 1 and 8 patentably distinguish the invention over Maddox and Komori, whether taken alone or in combination.

Further, Applicants submit that none of the other cited references compensates for the deficiencies of Maddox and Komori with respect to the present invention as claimed. Reconsideration and withdrawal of the § 103 rejections are respectfully requested.

New independent Claim 24 is directed to a speech signal processing apparatus which computes HMMs of speech segments with phonetic label in a speech database and performs segment recognition of the speech segments in the speech database on the basis of the HMMs, as in Claim 1. The speech signal processing apparatus judges whether the result of the

segment recognition corresponds to the phonetic label of the speech segment and stores the result of the judgment associated with the speech segment.

New independent Claim 25 is a method claim corresponding to Claim 24.

According to the invention as recited in Claim 24, each speech segment can be stored with the result of a judgment for indicating whether the result of the segment recognition of the speech segment corresponds to the phonetic label of the speech segment.

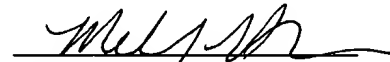
Applicants submit that none of the cited references, whether taken alone or in combination, teaches the claimed combinations of features recited in Claims 24 and 25.

The dependent claims are submitted to be allowable for the same reasons that the base claims from which they depend are allowable, and further due to the additional features that they recite. Individual consideration of each dependent claim is respectfully requested.

Applicants submit that the application is in condition for allowance. Favorable consideration of the claims and passage to issue of the application at the Examiner's earliest convenience are requested.

Applicants' undersigned attorney may be reached in Washington, D.C. by telephone at (202) 530-1010. All correspondence should continue to be directed to the below-listed address.

Respectfully submitted,


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